Web-Technology: The Impact on Facility Management is Just Beginning

By Richard Ness, AIA and Eric Teicholz

The Need for Technology in FM

Most FM departments know that they have the toughest job in an organization. They are in charge of the facilities. Facilities are typically an organization's largest capital asset – 8-12% of the annual capital budget. Keeping track of the facility maintenance is a struggle, let alone trying to plan for it. And until recently, capital-planning initiatives remained unsupported by technology, making the process seem improbably instead of defensible.

It doesn't need to be said, but we will say it anyway – facilities, which support people and the day-to-day activities of an organization, are getting older. Historically, FM departments are faced with growing backlogs of deferred maintenance and increased competition for funding to address the issues. This doesn't even count the fires that need to be put out on a regular basis. FMers have the tough job of making the organization realize and recognize the importance and immediacy of addressing its aging facilities to be sure a sever potential liability is avoided. It is a continual process and classic project-based approaches are not working to address the issue. New technology is helping to break from the traditional mind-set and look to new ways to succeed in providing cost-effective solutions to facilities issues.

In the struggle to get ahead of the capital-planning curve, FMers have been given a number of technology options to become more proactive. CPMS (capital planning and management solutions) technology began to be implemented to act as an on-going living tool to aid facility managers. Not only, can this technology track all of the facilities issues and assign values to them, such as an FCI, it provided defensible data that departments could use in budget requests and in the creation of capital projects. In addition, the CPMS tool could talk to the other FM technology being utilized by the organization, such as CMMS, CAFM and CIFM systems.

Now, strategic CPMS technology has taken the next step forward – onto the World Wide Web. Web-technology allows even greater capabilities in capital planning. Facilities spread across great distances have access to the same CPMS system. Information can be inputted or results can be viewed at anytime and from any location in the world with Internet access. In addition, web-technology is bringing facilities needs out into the spotlight. Facilities departments are able to communicate facilities issues across all levels of an organization, from the facilities manager to the chief executive or business officer. And the upper levels are listening and paying attention. With the new technology, facilities departments are able to link their needs with the goals of the organization. The condition of facilities has been directly linked with providing quality education, health care, and employee recruitment and retention.

In the future, web-technology will go even further. The web-based CPMS will be linked to e-business making it possible for a facility manager to see where the problem is, create the project to repair the problem, and order any materials necessary all from the comfort of his or her office.

This session will discuss new technologies that are available to facilities managers and planners. Specifically, web-technology is the newest and most exciting technology as a means to link the
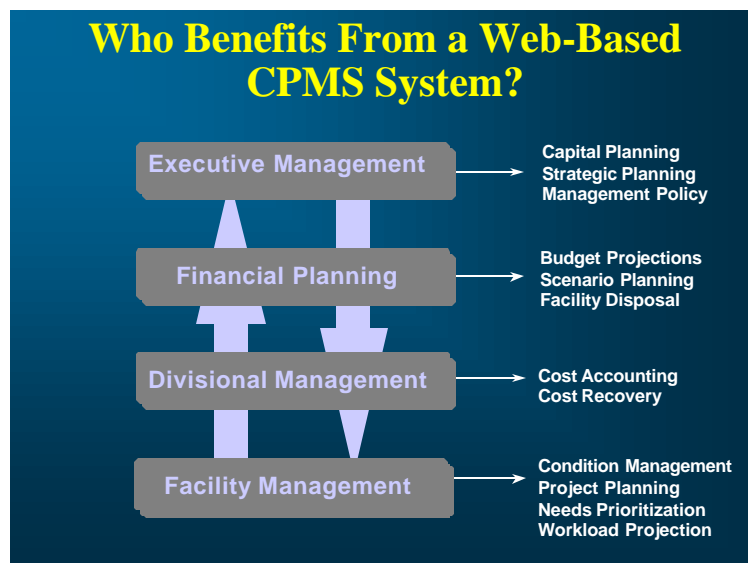
facilities needs to the organizational mission, thereby, transforming the way the organization invests in its facilities. Specific examples of how the web is working for organizations such as the University of North Carolina System and the General Services Administration – National Capital Region will be discussed.

Linking Organizational Goals to Facilities
Evolving from short-term to long-term, technology-based approaches in facilities management requires a fundamental change in how management views facilities. Of critical importance in changing management's perspective is strategically linking facilities planning goals to organizational missions and objectives. Facilities professionals must consider their organization's business objectives and how their facilities reflect those objectives. After establishing this baseline, they can set up programs scheduling correction of deferred maintenance.

A key to linking facilities to the organizational mission is achieved by means of establishing enterprise-wide communication of facilities conditions, needs, and planning guidelines across all departments. That's what it is all about – elevating facilities issues to the level where they receive the recognition they deserve. Input must be solicited from all constituencies and communicated in multiple directions and formats in order to build awareness, consensus, and excitement. This entire process defines, refines, and solidifies core missions and goals.

How can a facility manager establish open communication across all constituencies? A combination of Web-based technologies and a comprehensive lifecycle capital reinvestment approach can help. Facility managers need in-depth analyses of their facilities conditions and accurate information regarding the costs of associated maintenance and repair. The Web-based approach enables the distribution of this information down to the local level, while also communicating content and general policy across all layers. The web-based system serves as a central repository for all facilities information. As a result, individuals located throughout the organizations and/or in remote locations can effectively assess infrastructure, gather accurate data on facilities conditions, and share that data to form deferred maintenance, renewal and replacement cost information.

Who Benefits From a Web-Based CPMS System?

Executive Management → Capital Planning / Strategic Planning / Management Policy

Financial Planning → Budget Projections / Scenario Planning / Facility Disposal

Divisional Management → Cost Accounting / Cost Recovery

Facility Management → Condition Management / Project Planning / Needs Prioritization / Workload Projection

The Web-Based Approach
In addition to increased communication regarding the strategic importance of facilities, and maintaining a central repository for facilities information, embracing a web-based capital planning and management solution to facilities management provides several other benefits including:

- Consistent and accurate picture of past due, current, and upcoming capital reinvestment.

- Dynamic "live" capital planning tool, providing longevity to facility data.
- Ability to accommodate a large number of simultaneous requests, including data input, access and analysis
- Standardized "apples to apples" benchmarking of facilities across the organization, including remote locations
- Tools to mitigate facility risk, such as life-safety and business interruptions.
- High quality, timely analyses and reporting.
- Cost savings visible to all – including reduced application administration costs associated with only one server
- Defensible data that improves the chances for adequate budget funding.

A Web-based facilities management system provides ongoing decision support capability to address issues relative to long-term strategic capital planning and management. As a decision support tool, the system does not automate all facility assessment and capital planning decisions, but rather supports the facility managers/decision makers wherever they are. The Web-enabled system should provide the following:

- The ability to quantify physical and functional facilities needs, incorporating existing as well as new information.
- The blending of quantitative and qualitative information and creating quantitative metrics.
- Computer-based "what-if" financial analysis to determine budgetary needs and alternatives.
- Methods to efficiently create and track capital projects.
- Horizontal and vertical procurement capabilities to ensure system-wide establishment of objectives.

A Web-enabled CPMS system can be linked with space planning systems and CMMS (computerized maintenance and management systems) to create an integrating approach to facilities management.

The Reality of the Web
Web-technology may seem like a good idea for the future and great topic to present on at a conference, but is it really available? A number of organizations are implementing strategic CPMS web-based solutions and meeting great success.

Case Study: GSA Utilizing Web Technology to Support its Mission
In its effort to better manage the quality of its government buildings, the General Services

Administration (GSA) deployed a Web-based application capital planning and management solution. This system allows the GSA to focus its capital facility management initiatives in a cost-effective, time-efficient manner, while best assessing and servicing the conditions of the agency's buildings.

The key to this innovative approach is VFA's Web-enabled and knowledge-based software, which enabled the GSA, National Capital Region's (GSA-NCR) own building managers to perform an initial assessment. Through filling in a Web-based questionnaire in about 60 minutes, the software calculates estimated financial requirements and can be used to establish future actions.

The Web-based system for gathering, distributing and prioritizing mass amounts of facilities data across complex, multi-site and multi-structure government systems has empowered the GSA with the leverage of consistent building evaluation and the ability to effectively allocate funds for renovations and repairs. The system built for the GSA-NCR created an organized, methodical means of receiving and analyzing data for current and future building needs without having to expend significant time and effort in examining facilities not requiring immediate attention.

Because its Building Evaluations Reports occurred only every five years, GSA-NCR looked to Web technology to assist in maintaining consistent documentation and communication about building conditions across its more than 150 million square feet of federally owned and leased space.

To accomplish the GSA-NCR's building maintenance goals and ensure accurate assessments, the Web application consisted of three different levels for collecting information. The first level collected base building information in custom GSA fields. From there, Level 2 included questions from which to derive the overall condition of the building based on the combination of the answers in Level 1 and the condition of the building systems; Level 3 is a more difficult version of Level 2 with specific data relating to deficiencies. The worst buildings as determined by Level 3 were then scheduled for a full detailed assessment. The unique design enabled the GSA-NCR to gather explicit building condition statistics, analyze all of the data, and from there, determine if further assessment would be necessary.

As this government agency has moved away from outdated approaches of facility management, it has set the foundation for long-term planning initiatives for its multi-site and multi-structure systems. Through the use and implementation of Web technology, the GSA has honed its ability to successfully determine where to allocate limited resources in the most cost-effective manner.

Case Study: The UNC Challenge and Web-based Solution
With enrollment numbers increasing at the University of North Carolina (UNC) 16 campuses, the condition of campus facilities became an immediate concern for university administrators. Within a six-week timeframe, UNC needed to cost-effectively determine if enough space was available and whether or not the current facilities conditions could accommodate an increase in enrollment. UNC did have facility data based on the state's condition assessment program, however this data only dealt with deferred maintenance, and the quality of information varied from campus to campus in terms of overall consistency.

UNC recognized the need for a detailed account of the facilities conditions at each campus, as the true need and costs of new projects could not be appropriately calculated without accurate, up-to-date facilities condition data. The University embarked on an ambitious program to resolve its facilities issues by employing the use of VFA's Web-enabled facilities technology and management system. By responding to the system's online questionnaire about various aspects of each campus building, UNC was able to compile data on campus facilities conditions and calculate each building's cost of repair and renewal.

The system included a central Web site, which allowed each campus to review its specific deficiencies and requirements data and easily communicate the information across the entire University. The Web-based approach provided UNC with one system-wide facilities condition report instead of the multiple campus reports previously generated. Additionally, the Web system, ensured the collection of valid data and enabled collaboration across the 16 distributed campuses. Participants grasped the magnitude of the facility issues quickly and applied cost-effective workable solutions to achieve desired solutions.
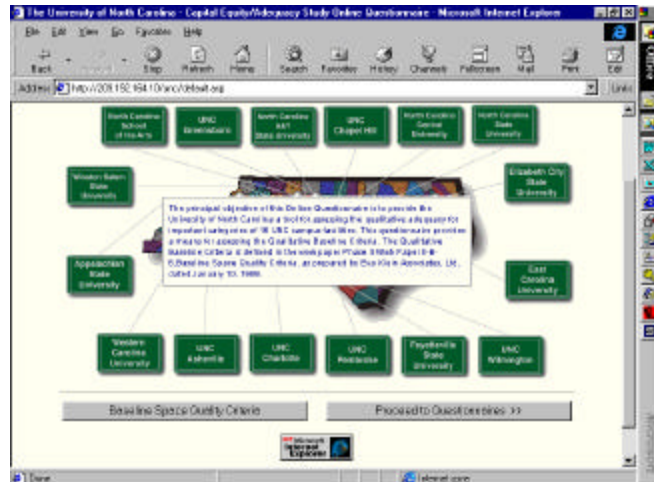
Web-based CPMS technology is a new and innovative reality. It is a key factor in getting the attention of the top levels of management in an organization. It is, however, also a change in thinking and requires changes to traditional approaches, and a commitment to an ongoing process of strategic facilities management and capital planning.

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